

PATENT

Atty. Dkt. No. APPM/006877/PPC/CMP/CKIM

IN THE CLAIMS:

Please cancel claims 3 and 4, without prejudice, and amend the claims as follows:

1. (Currently Amended) A method of electrochemically and mechanically planarizing a surface of a substrate, comprising:

(a) providing an electrically conductive solution and an electrode in contact with the electrically conductive solution;

(b) disposing a polishing medium in contact with the electrically conductive solution;

(c) positioning a the substrate having a conductive material formed thereon against the polishing medium so that a the surface of the substrate contacts the electrically conductive solution and the polishing medium;

(d) applying a first positive potential between the polishing medium and the electrode for a first time period to remove conductive material from the substrate, wherein the first positive potential is a pulsed potential with a waveform; and

(e) applying a second positive potential between the polishing medium and the electrode for a second time period to remove conductive material from the substrate, wherein the second potential is lower than the first potential.

2. (Previously Presented) The method of claim 1, wherein the polishing medium comprises an electrode.

3. – 4. (Canceled)

5. (Currently Amended) The method of claim 1, wherein ~~the first positive potential is a pulsed potential with a waveform~~ and the second positive potential is a another pulsed potential with a waveform.

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6. (Previously Presented) The method of claim 1, further comprising providing relative motion between the substrate and the polishing medium.
7. (Previously Presented) The method of claim 1, wherein the polishing medium comprises a conductive portion, and the conductive portion comprises an electrode.
8. (Previously Presented) The method of claim 1, wherein the first positive potential is modulated within a predefined range of potentials.
9. (Previously Presented) The method of claim 1, wherein the second positive potential is modulated within a predefined range of potentials.
10. (Original) The method of claim 1, further comprising repeating steps (d) and (e) for a third time period.
11. (Previously Presented) The method of claim 1, wherein the polishing medium comprises a conductive polishing material or a composite of a conductive polishing material disposed in a conventional polishing material.
12. (Previously Presented) The method of claim 11, wherein the conductive material comprises copper or tungsten.
13. (Previously Presented) The method of claim 1, further comprising applying a third potential between the polishing medium and the electrode for a third time period, and the third potential is a zero potential.
14. (Previously Presented) The method of claim 16, wherein the third positive potential is between about 4 volts and about 8 volts.
15. (Original) The method of claim 1, wherein the first time period is greater than the second time period.

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16. (Previously Presented) The method of claim 1, further comprising applying a third positive potential between the polishing medium and the electrode for a third time period.

17. (Previously Presented) The method of claim 16, wherein the third positive potential is a pulsed potential with a waveform.

18. (Currently Amended) The method of claim 16, wherein ~~the first positive potential is a pulsed potential with a waveform,~~ the second positive potential is a second pulsed potential with a second waveform, and the third positive potential is a third pulsed potential with a third waveform.

19. (Previously Presented) The method of claim 1, further comprising
(f) applying a third positive or zero potential between the polishing medium and the electrode for a third time period; and
repeating steps (d) through (f) for a period of time.